



CURRENCY AUTHENTICATION USING MATLAB

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ABSTRACT

Counterfeit money is imitation currency produced without the legal sanction of the state or government. Producing or using this fake money is a form of fraud or forgery. Counterfeiting is as old as money itself, and is sufficiently prevalent throughout history that it has been called "the world's second oldest profession.. This has led to the increase of corruption in our country hindering country's growth. Common man became a scapegoat for the fake currency circulation, let us suppose that a common man went to a bank to deposit money in bank but only to see that some of the notes are fake, in this case he has to take the blame. Counterfeiting, of whatever kind, may be that has been occurring ever since humans grasped the concept of valuable items, and there has been an ongoing race between certifier like (banks, for example) and counterfeiter ever since. Some of the effects that counterfeit money has on society include a reduction in the value of real money; and inflation due to more money getting circulated in the society or economy which in turn dampen our economy and growth - an unauthorized artificial increase in the money supply; a decrease in the acceptability of paper money; and losses. And this Some of the methods to detect fake currency are water marking, optically variable ink, security thread, latent image, techniques like counterfeit detection pen and using MATLAB.

I. INTRODUCTION

Counterfeit money is imitation currency produced without the legal sanction of the state or government. Producing or using this fake money is a form of fraud or forgery. This has led to the increase of corruption in our country hindering country's growth.

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II. BACKGROUND OVERVIEW

A. Existing System

Different range of counting machines like Basic Note counter, Intelligent

Counting cum counterfeit detection machines and Hi Speed Heavy duty

cash counting machine are available to suit different type of customers.

Highly dependable and ideal for Banks, Big & small business houses,

Traders, retailers, jewellers and almost all types of business establishment

can use them according to their suitability.

A currency-authentication machine is a machine that authenticates money. These machines may be purely mechanical or use electronic components. The machines also provide a total count of all money, or count off specific batch sizes for wrapping and storage.

Currency Authenticators are commonly used in:
money deposit machines,

currency counter hardware machines

In some modern automated teller machines

B. Drawbacks of Existing System

- Many Currency Authenticators machines are available in the market. But, not a single software.
- These machines occupy a good amount of space.
- Existing machines are expensive too.
- They are Harder to maintain.
- Common people can't afford to buy currency authenticating machine
- Supermarkets need to buy machines for every counter they have, which costs them a lot
- These machines also occupy some area of the counter

C. Proposed System

- The main objective of the project is to develop a Counterfeit Currency Authentication System using Matlab to detect fake currency.
- Project will try to include following key features:
 - (a) Currency Authentication using a simple camera.
 - (b) No additional processing unit needed.
 - (c) Software based Authentication.

III. ALGORITHM FOLLOWED FOR CURRENCY AUTHENTICATION:

Step 1: Make the machine learn the currency identification marks. For this we need to have positive instances(the Object Of Interest, in our case currency identification marks) and negative instances (Background).

Step 2: Create positive instances using Image Trainer App.

Step 3: Export Region Of Interest(ROI) and provide it in train Cascade Object Detector function.

Step 4: After generating the xml file from Step 3, Generate a Detector Object for Object Of Interest(OOI).

Step 5: Now read the image file on which you want to test the algorithm.

Step 6: Apply detector Object on the image using step() function. The step() function will return (x, y, width, height) of the OOI detected in that image.

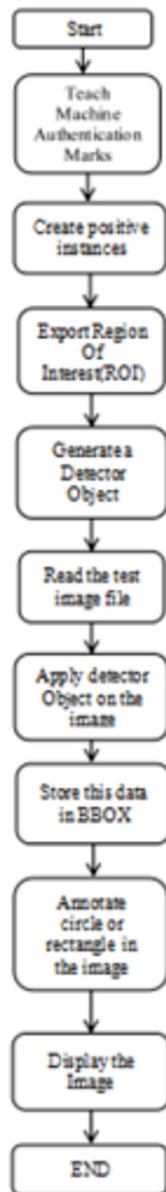
Step 7: Store this data in BBOX (Bounding Box).

Step 8: Annotate circle or rectangle in the image where OOI is been detected.

Step 9: Display the Image.

NOTE: For better results False Alarm Rate should be kept low and Num Cascade Stages should be high.

Flowchart:



IV. FUTURE SCOPE

- Develop an Android application to add mobility to the system.
- Increase the processing speed, provide better performance and accuracy.

REFERENCES

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